

Appl. No. 10/810,804
Amendment dated: December 13, 2005
Reply to OA of: September 13, 2005

Amendments to the Specification:

Beginning on page 4 of the originally filed specification, please replace line 9 of page 4 through 6 of page 5 with the following amended paragraph.

The present invention provides a method for forming deep trenches in a semiconductor substrate. The method and structure utilize a borosilicate glass layer and a borophosphosilicate glass layer to form a composite hard mask. With the borophosphosilicate glass layer serving as a strip layer, the composite hard mask can be easily removed by dry etching using hydrogen fluoride vapor after the deep trenches have been formed. More specifically, ~~[[The]]~~ the method comprises~~[[:]]~~ providing a semiconductor substrate; forming a pad oxide layer on the semiconductor substrate; forming a pad nitride layer on the pad oxide layer; forming a borophosphosilicate glass layer on the pad nitride layer; forming a borosilicate glass layer on the borophosphosilicate glass layer; and forming deep trenches through the borosilicate glass layer, the borophosphosilicate glass layer, the pad nitride layer, the pad oxide layer and into the semiconductor substrate.

The present invention also provides a structure for forming deep trenches in a semiconductor substrate. The structure comprises~~[[:]]~~ a semiconductor substrate; a pad oxide layer on the semiconductor substrate; a pad nitride layer on the pad oxide layer; a borophosphosilicate glass layer on the pad nitride layer; and a borosilicate glass layer on the borophosphosilicate glass layer.